

REMARKS

This communication is a full and timely response to the aforementioned final Office Action dated July 15, 2009. Claims 11-20 are not amended and remain in the application. Thus, claims 11-20 are pending in the application. Claims 11-13 are independent.

Reconsideration of the application and withdrawal of the rejections of the claims are respectfully requested in view of the following remarks.

I. Rejections Under 35 U.S.C. § 103

Claims 11-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 6,617,678, hereinafter "Yamazaki") in view of Abe et al. (U.S. Patent No. 6,205,636, hereinafter "Abe"). This rejection is respectfully traversed.

To establish a *prima facie* case of obviousness, the applied references must disclose or suggest all the claim limitations. See MPEP 2142; 706.02(j). If the applied references fail to disclose or suggest one or more of the features of a claimed invention, then the rejection is improper and must be withdrawn.

Applicants respectfully submit that the applied references do not disclose or suggest all the recited features of the claimed invention, for at least the following reasons.

Abe discloses an apparatus for automatically assembling a product, in which the apparatus includes an image recognition unit and a mechanical assembly unit. With reference to Figure 1, the image taking section 7 (which includes a camera 8, a zoom optical system 9, and a zoom motor 10), the image recognition section 11, the CPU 18, the memory device 19, the monitor display 20, the key entry section 21 and the mechanism control section 17 constitute the image recognition unit (see Column 4, lines 26-32). The objective of Abe is to align the image recognition unit with the actual mechanical operating parameters of the mechanical assembly unit, so that the product can be assembled automatically.

To align the image recognition unit, a reference mark having known dimensions is first pictured through the camera 8, to compile a data table of measured pixel rates and offset values (pictured location versus actual location) in

order to align the image recognition unit properly (see Column 5, lines 1-6, and Column 6, lines 34-53). This initial registration procedure intends to ensure that when the product is automatically assembled, the positions recognized by the image recognition unit will match the actual positions. In particular, with reference to Figure 6, a known diameter of a jig is measured through the camera 8 to determine the recognition offset (C_x , C_y) of the camera 8, relative to the known position and diameter of the jig. This calibration process produces the recognition offset C_x , C_y , a zoom magnification index n , and a pixel rate P_x , P_y (see Column 6, lines 34-54). The pixel rate is a mathematical coefficient for converting the dimension of an actual object to the representation of the object in an image taken by the camera 8. In other words, the pixel rate is a conversion factor identifying an actual position size relative to the size of an object represented in an image taken by the camera 8 (see Column 6, lines 54-63). Once the values of the pixel rate P_x , P_y and recognition offset C_x , C_y are determined relative to the actual position of the point of measurement, the values are fixed for the assembly process (see Column 6, line 64 to Column 7, line 6), provided that the zoom magnification index, which is represented by the zoom coordinate Z , is kept constant. The zoom magnification index is a numerical value representing the degree of zoom of the camera 8 relative to a number of revolutions of a zoom motor 10 for changing the zoom focus of the camera 8 (see Column 7, lines 1-14).

Abe thus discloses a calibration technique for calibrating actual positions with positions measured by a camera 8, so that automatic assembly can be completed based on positions observed by the camera 8 during assembly. In attempting to arrive at the subject matter of claim 11, the Office alleged that the feature of an input unit receiving input data that includes bond wire coordinate information for connecting the semiconductor to an interposer corresponds to the die ejector 6 and Column 8, lines 59-64. This assertion is not supportable. Column 8, lines 59-64 discloses a technique for registering different pixel rates P_x , P_y and recognition offset C_x , C_y values based on different zoom indexes. This cited section of Abe, nor any other section of Abe, has no relationship or similarity to an input unit receiving input data that includes bond wire coordinate information for connecting a semiconductor to an interposer, as recited in claim 11.

Furthermore, in striving to arrive at the subject matter of the creating unit as recited in claim 11, the Office referred to the determination of whether a position measured by the camera 8 has an angular offset relative to an actual position or the orientation of a chip 5 as measured by the camera 8 is different from the orientation of the actual placement of one or more chips 5 (see Figure 10), as disclosed in Column 7, lines 26-40, Column 10, lines 44-55 and Column 11, lines 18-26. Applicants respectfully submit that the Office has misinterpreted these sections of Abe, because they have no relationship or similarity to creating simulated design data that simulates an occurrence of deviation in bond wire connection terminal positions of an interposer. The *actual* disclosure of the above-cited sections of Abe is discussed below, to illustrate the improper reliance thereon by the Office in attempting to arrive at the subject matter of claim 11.

Column 7, lines 26-40 disclose, as discussed above, that an initial registration process is performed to register a zoom index and pixel rate of a known dimension, in order to calibrate the recognition accuracy of the camera 8 and image recognition section. Column 10, lines 44-55 disclose that in determining the recognition offset values Cx, Cy, the known x-y (two-dimensional) orientation of a chip 5 is factored in calibrating the imaged orientation, relative to the actual orientation. Column 11, lines 18-26 disclose that imaged corners of the chips 5 are calibrated with reference to known, measured corners of the chips 5, so as to ensure accuracy of recognition by the image recognition section.

The above-cited sections of Abe, nor any other section of Abe, have no relationship or similarity to creating simulated design data that simulates an occurrence of deviation in bond wire connection terminal positions of an interposer, as recited in claim 11. On the contrary, Abe merely discloses a process by which imaged values are calibrated against actual values.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that Abe does not disclose or suggest the input control unit and creating unit as recited in claim 11. By failing to disclose or suggest the simulated design data created by the creating unit, it is also not possible for Abe to disclose or suggest the analyzing unit as recited in claim 11.

Yamazaki does not cure the deficiencies of Abe for failing to disclose or suggest the input control unit, creating unit and analyzing unit, as recited in claim 11.

Therefore, no obvious combination of Yamazaki and Abe would arrive at the subject matter of claim 11, since Yamazaki and Abe, either individually or in combination, fail to disclose or suggest all the recited features of claim 11.

Although of different scope than claim 11, Applicants respectfully submit that Yamazaki and Abe also fail to disclose or suggest the subject matter of claims 12 and 13, for similar reasons to those presented above. For instance, Applicants respectfully submit that Yamazaki and Abe do not disclose or suggest the input control unit, creating unit, and analyzing unit of claim 12, and the input control unit, second data creating unit, measuring unit and analyzing unit of claim 13, for reasons similar to those presented above with respect to claim 11.

For at least the foregoing reasons, Applicants respectfully submit that claims 11-13 are patentable over Yamazaki and Abe, since Yamazaki and Abe, either individually or in combination, fail to disclose or suggest all the recited features of claims 11-13. Therefore, Applicants respectfully submit that claims 11-13 are patentable over Yamazaki and Abe.

Dependent claims 14-20 recite further distinguishing features over the applied references, and are also patentable by virtue of depending from claims 11-13. The foregoing explanation of the patentability of independent claims 11-13 is sufficiently clear such that it is believed to be unnecessary to separately demonstrate the additional patentable features of the dependent claims at this time. However, Applicants reserve the right to do should it become appropriate.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that claims 11-13, as well as claims 14-20 which depend therefrom, are patentable over the applied references.

II. Request for Withdrawal of Finality of Office Action

The present Office Action was made final based on the interpretation that Applicants' "amendment necessitated the new ground(s) of rejection contained in this Office Action." This assertion is not supportable, and the finality of the present Office Action is improper.

The claims of the present application have not been amended to overcome a rejection made on the basis of prior art. Rather, the claim amendments presented during the prosecution history of the present application have been made to overcome rejections under 35 U.S.C. § 101 and 35 U.S.C. § 112, second paragraph.

For instance, in the Amendment filed on October 21, 2008, claim 13 was amended in response to its rejection under 35 U.S.C. § 112, second paragraph. The claims of the present application were not amended to overcome the separate rejections of claims 13-20 under 35 U.S.C. § 102 on the basis of the Ding, Razon and Howard references. Rather, the art rejections of claims 13-20 were traversed with respect to the features recited in original claim 13 (see pages 10-14 of the "Remarks" section of the October 21, 2008 Amendment).

Then, in the Amendment filed on April 27, 2009, claims 11-13 were amended in response to the Office's evolving interpretation of patentable subject matter under 35 U.S.C. § 101. In addition, claims 11 and 12 were amended in response to their rejection under 35 U.S.C. § 112, second paragraph, after the species election requirement was withdrawn and claims 11 and 12 were rejoined to the application. The claims of the present application were not amended to overcome the rejections of claims 11-20 under 35 U.S.C. § 103(a) on the basis of the Eka and Bon references. Rather, the art rejections of claims 11-20 were traversed with respect to the features recited in original claims 11-13 (see pages 9-11 of the "Remarks" section of the April 27, 2009 Amendment).

Accordingly, the Office's justification for making the present Office Action final is improper, because no rejection contained in the present Office Action was necessitated by any claim amendments presented by Applicants. The art rejections contained in the present Office Action, which are traversed for at least the reasons presented in Section I above, were presumably believed to be necessary by the Office because the previous prior art rejections of the claims were correctly withdrawn as being improper.

Therefore, Applicants respectfully request that the finality of the present Office Action be withdrawn, because Applicants have not presented any claim amendments which necessitate the grounds of rejection contained in the present Office Action.

III. Conclusion

In view of the foregoing remarks, it is respectfully submitted that the present application is clearly in condition for allowance. Accordingly, a favorable examination and consideration of the instant application are respectfully requested.

If, after reviewing this Response, the Examiner believes there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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